Appendix P
Contingency Measures Documentation

TABLE OF CONTENTS

LIST OF TABLES

CONTINGENCY MEASURES DOCUMENTATION

I. Introduction

Section 172(c)(9) of the Clean Air Act requires that the nonattainment State Implementation Plan (SIP) contain specific measures that would take effect upon a State's failure to attain the ozone standard in a given area, without further action by the State or the US Environmental Protection Agency (USEPA). Guidance from the USEPA indicates that the measures should equal approximately three percent of the baseline emissions so that reasonable progress level of reduction could be expected to occur in the year following the failure to attain. The South Carolina Department of Health and Environmental Control (SC DHEC) elected to adopt only nitrogen oxides (NO_x) contingency measures since the area is NO_x-limited. The baseline NO_x emissions for 2002 are 32 tons per day, and the amount of reductions needed for the contingency measures is 0.96 tons per day (Table P-1). The contingency plan consists of Federal, state, and local measures.

Table P-1: 2002 Baseline NO_x Emissions for York County, South Carolina

Point	Area	Non-Road	Highway Mobile	Total
11.1	2.2	4.9	13.8	32.0

II. Federal Measures

The Federal measures result from the fleet turnover of the light and heavy-duty engine standards from the on-road mobile sector, and the non-road engine standards. These measures are already adopted, and the fleet turnover will occur without further action by either the State or the USEPA.

The emission reductions due to on-road mobile sources were estimated using the emission estimates for the transportation conformity motor vehicle emission budgets (MVEBs) for the attainment year 2009 and estimating the emissions for 2010. The USEPA's MOBILE6.2 model was used to estimate the emissions for both years. Detailed documentation on how on-road mobile source emissions are estimated can be found in Appendix F.3.

Updated 2010 vehicle miles traveled (VMT) and speeds were not available for the nonattainment area. For speeds, the 2009 speeds used in the MVEBs were used since the speeds are not expected to change dramatically in one year. For the VMT, SCDHEC used a previous data set that contained 2002 and 2010 VMT. The 2009 VMT was estimated using the linear slope between 2002 and 2010 values. The percent growth was then estimated between 2009 and 2010. This percent growth was used to grow the updated 2009 VMT data to 2010. For York County, only the VMT projected for the nonattainment portion of the County was used to estimate 2009 and 2010 emissions.

For the nonroad mobile sources, USEPA's NONROAD2005c model was used to estimate the emissions for 2009 and 2010. Since the NONROAD model only produces whole county emissions, to estimate the emissions for the nonattainment portion of York County, the percent population in the nonattainment townships (78.3%) was compared to the whole county was used to apportion the emissions.

Section V of this appendix contains:

- The MOBILE6.2 input and output files for the 2010 runs
- VMT used to estimate the 2009 and 2010 on-road mobile emissions
- The NONROAD2005c model option files

For 2009 mobile emissions, the input and output files can be found in Appendix F.3. Table P-2 summarizes the expected emission reductions due to Federal measures.

Table P-2: Estimated Emission Reductions Expected from Federal Measures

York County	2009 NOx (tons/day)	2010 NOx (tons/day)	Difference (tons/day)
On-road Mobile	8.01	7.41	-0.6
Non-road Mobile	2.59	2.48	-0.11
Totals	10.6	9.89	-0.71

III. State and Local Measures

The RFATS MPO Congestion Mitigation and Air Quality (CMAQ) projects for the funding years 2004 through 2006 were announced at a press conference on January 26, 2007. The York County interagency group, which includes the RFATS MPO, SCDHEC, SCDOT, USEPA Region 4, the FHWA and the FTA, has been meeting for several years to address transportation conformity and the attainment SIP. This group approved the methodology used in determining air quality benefits for the selected projects. The project list includes signalization improvements, turn lanes, bicycle paths, a hybrid trolley, alternative fuel vehicles, and an idle reduction and awareness program for schools. Of the ten projects on the list, seven are fully funded. Project sponsors include the City of Rock Hill, RFATS, RFATS Congestion Management System, SCDOT District 4, York County, and Catawba Regional Council of Governments (COG). Local matches were provided by the City of York, the City of Rock Hill, York County, the Catawba COG, the SC Energy Office, the Rock Hill School District, and the Museum of York County. Emissions reductions over the lifetimes of the currently funded projects are estimated at 1,999 tons of VOCs, 8,659 tons of CO, and 1,678 tons of NOx. Matching funding for the three additional projects will need to be identified before they can proceed. These projects, when funded, will produce additional reductions of 61 tons of VOCs, 266 tons of CO, and 52 tons of NOx. Because SC has been determined to be NOx limited, the SCDHEC will encourage the RFATS Interagency Partners to fund future CMAQ projects that will result in the most reduced NOx emissions

IV. Conclusions

The Federal measures due to fleet turnover will result in approximately 0.71 tons/day NO_x emissions reduction, or about 2.2% of the baseline emissions. There is no easy way to estimate the amount of reductions that would be achieved through Congestion Mitigation and Air Quality (CMAQ) projects. The SCDHEC believes that the 2.2 % reductions in NO_x emissions from the Federal measures and the CMAQ projects are sufficient to meet the contingency measure requirements of Section 172(c)(9).

V. Data Files Used in Developing Estimates

A. 2010 MOBILE6.2 Input Files

```
**********HEADER SECTION**********

*YORK SIP - 2010 CONTINGENCY*

MOBILE6 INPUT FILE :
POLLUTANTS        : HC NOX
WITH FIELDNAMES   :
SPREADSHEET       :
RUN DATA          :

**********RUN SECTION #1**********
MIN/MAX TEMP      : 66.0 92.0
FUEL RVP          : 9.0
NO REFUELING      :

**********SCENARIO SECTION #1*********
SCENARIO RECORD   : YORK COUNTY 2010 - RURAL INTERSTATE
CALENDAR YEAR     : 2010
EVALUATION MONTH  : 7
AVERAGE SPEED     : 61.4 FREEWAY

**********SCENARIO SECTION #2**********
SCENARIO RECORD   : YORK COUNTY 2010 - RURAL PRINCIPAL ARTERIAL
CALENDAR YEAR     : 2010
EVALUATION MONTH  : 7
AVERAGE SPEED     : 46.8 ARTERIAL

**********SCENARIO SECTION #3**********
SCENARIO RECORD   : YORK COUNTY 2010 -  RURAL MINOR ARTERIAL
CALENDAR YEAR     : 2010
EVALUATION MONTH  : 7
AVERAGE SPEED     : 43.8 ARTERIAL

**********SCENARIO SECTION #4*********
SCENARIO RECORD   : YORK COUNTY 2010 - RURAL MAJOR COLLECTOR
CALENDAR YEAR     : 2010
EVALUATION MONTH  : 7
AVERAGE SPEED     : 39.1 ARTERIAL

**********SCENARIO SECTION #5**********
SCENARIO RECORD   : YORK COUNTY 2010 - RURAL MINOR COLLECTOR
CALENDAR YEAR     : 2010
EVALUATION MONTH  : 7
AVERAGE SPEED     : 24.3 ARTERIAL

**********SCENARIO SECTION #6**********
SCENARIO RECORD   : YORK COUNTY 2010 - RURAL LOCAL
CALENDAR YEAR     : 2010
EVALUATION MONTH  : 7
AVERAGE SPEED     : 26.9 ARTERIAL
```

**********SCENARIO SECTION #7**********
SCENARIO RECORD : YORK COUNTY 2010 - URBAN INTERSTATE
CALENDAR YEAR : 2010
EVALUATION MONTH : 7
AVERAGE SPEED : 60.8 FREEWAY

**********SCENARIO SECTION #8**********
SCENARIO RECORD : YORK COUNTY 2010 - URBAN FREEWAY-EXPRESSWAY
CALENDAR YEAR : 2010
EVALUATION MONTH : 7
AVERAGE SPEED : 39.0 FREEWAY

**********SCENARIO SECTION #9**********
SCENARIO RECORD : YORK COUNTY 2010 - URBAN PRINCIPAL ARTERIAL
CALENDAR YEAR : 2010
EVALUATION MONTH : 7
AVERAGE SPEED : 35.3 ARTERIAL

**********SCENARIO SECTION #10**********
SCENARIO RECORD : YORK COUNTY 2010 - URBAN MINOR ARTERIAL
CALENDAR YEAR : 2010
EVALUATION MONTH : 7
AVERAGE SPEED : 35.2 ARTERIAL

**********SCENARIO SECTION #11*********
SCENARIO RECORD : YORK COUNTY 2010 - URBAN COLLECTOR
CALENDAR YEAR : 2010
EVALUATION MONTH : 7
AVERAGE SPEED : 25.6 ARTERIAL

**********SCENARIO SECTION #12**********
SCENARIO RECORD : YORK COUNTY 2010 - URBAN LOCAL
CALENDAR YEAR : 2010
EVALUATION MONTH : 7
AVERAGE SPEED : 23.1 ARTERIAL

END OF RUN :

B. MOBILE6.2 Output Files

****
* MOBILE6.2.03 (24-Sep-2003) *
* Input file: YKSIPC.IN (file 1, run 1). *
****
M603 Comment:
User has disabled the calculation of REFUELING emissions.

* ##########################
* YORK COUNTY 2010 - RURAL INTERSTATE
* File 1, Run 1, Scenario 1.
* ##########################

M515 Warning:
The combined freeway and ramp average speed entered
cannot be greater than 60.7 miles per hour.
The average speed will be reset to this value.
M582 Warning:
The user supplied freeway average speed of 60.7
will be used for all hours of the day. 100% of VMT
has been assigned to a fixed combination of freeways
and freeway ramps for all hours of the day and all
vehicle types.
M 48 Warning:
there are no sales for vehicle class HDGV8b

Calendar Year: 2010
Month: July
Altitude: Low
Minimum Temperature: 66.0 (F)
Maximum Temperature: 92.0 (F)
Absolute Humidity: 75. grains/lb
Nominal Fuel RVP: 9.0 psi
Weathered RVP: 8.6 psi
Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: No
Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3478	0.3890	0.1336		0.0359	0.0003	0.0020	0.0860	0.0054	1.0000

Composite Emission Factors (g/mi):

Composite VOC :	0.619	0.662	1.113	0.777	0.665	0.140	0.341	0.258	2.88	0.684
Composite NOX :	0.593	0.756	1.144	0.855	2.666	0.642	1.118	10.938	1.62	1.700

* ##########################
* YORK COUNTY 2010 - RURAL PRINCIPAL ARTERIAL
* File 1, Run 1, Scenario 2.
* ##########################
M583 Warning:
The user supplied arterial average speed of 46.8
will be used for all hours of the day. 100% of VMT
has been assigned to the arterial/collector roadway
type for all hours of the day and all vehicle types.
M 48 Warning:
there are no sales for vehicle class HDGV8b

Calendar Year: 2010
Month: July
Altitude: Low
Minimum Temperature: 66.0 (F)
Maximum Temperature: 92.0 (F)
Absolute Humidity: 75. grains/lb

Nominal Fuel RVP: 9.0 psi
Weathered RVP: 8.6 psi
Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: No
Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:	<6000	>6000	(All)							
VMT Distribution:	0.3478	0.3890	0.1336		0.0359	0.0003	0.0020	0.0860	0.0054	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	0.661	0.699	1.194	0.825	0.721	0.146	0.356	0.278	2.33	0.725
Composite NOX :	0.559	0.708	1.083	0.804	2.399	0.387	0.675	6.258	1.21	1.247

* ##########################
* YORK COUNTY 2010 - RURAL MINOR ARTERIAL
* File 1, Run 1, Scenario 3.
* ##########################
M583 Warning:
The user supplied arterial average speed of 43.8
will be used for all hours of the day. 100% of VMT
has been assigned to the arterial/collector roadway
type for all hours of the day and all vehicle types.
M 48 Warning:
there are no sales for vehicle class HDGV8b

Calendar Year: 2010
Month: July
Altitude: Low
Minimum Temperature: 66.0 (F)
Maximum Temperature: 92.0 (F)
Absolute Humidity: 75. grains/lb
Nominal Fuel RVP: 9.0 psi
Weathered RVP: 8.6 psi
Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: No
Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:	<6000	>6000	(All)							
VMT Distribution:	0.3478	0.3890	0.1336		0.0359	0.0003	0.0020	0.0860	0.0054	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	0.675	0.709	1.214	0.838	0.745	0.149	0.365	0.291	2.34	0.738
Composite NOX :	0.555	0.701	1.076	0.797	2.348	0.369	0.642	5.957	1.18	1.214

```
* ##########################
* YORK COUNTY 2010 - RURAL MAJOR COLLECTOR
* File 1, Run 1, Scenario 4.
* ##########################
 M583 Warning:
        The user supplied arterial average speed of 39.1
        will be used for all hours of the day.  100% of VMT
        has been assigned to the arterial/collector roadway
        type for all hours of the day and all vehicle types.
 M 48 Warning:
         there are no sales for vehicle class HDGV8b

             Calendar Year:  2010
                   Month:  July
                Altitude:  Low
          Minimum Temperature:  66.0 (F)
          Maximum Temperature:  92.0 (F)
           Absolute Humidity:   75. grains/lb
            Nominal Fuel RVP:   9.0 psi
              Weathered RVP:   8.6 psi
          Fuel Sulfur Content:   30. ppm

          Exhaust I/M Program:  No
            Evap I/M Program:  No
               ATP Program:  No
            Reformulated Gas:  No

    Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
         GVWR:            <6000     >6000     (All)
                ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
 VMT Distribution:    0.3478    0.3890    0.1336            0.0359    0.0003    0.0020    0.0860    0.0054    1.0000
 ---------------------------------------------------------------------------------------------------------------------
Composite Emission Factors (g/mi):
   Composite VOC :      0.698     0.724     1.245     0.857     0.791     0.157     0.384     0.317      2.40     0.760
   Composite NOX :      0.549     0.690     1.065     0.786     2.268     0.351     0.611     5.666      1.16     1.178
 ---------------------------------------------------------------------------------------------------------------------

* ##########################
* YORK COUNTY 2010 - RURAL MINOR COLLECTOR
* File 1, Run 1, Scenario 5.
* ##########################
 M583 Warning:
        The user supplied arterial average speed of 24.3
        will be used for all hours of the day.  100% of VMT
        has been assigned to the arterial/collector roadway
        type for all hours of the day and all vehicle types.
 M 48 Warning:
         there are no sales for vehicle class HDGV8b

             Calendar Year:  2010
                   Month:  July
                Altitude:  Low
          Minimum Temperature:  66.0 (F)
          Maximum Temperature:  92.0 (F)
           Absolute Humidity:   75. grains/lb
            Nominal Fuel RVP:   9.0 psi
```

```
            Weathered RVP:   8.6 psi
          Fuel Sulfur Content:   30. ppm

          Exhaust I/M Program:  No
            Evap I/M Program:  No
               ATP Program:  No
            Reformulated Gas:  No

     Vehicle Type:     LDGV   LDGT12   LDGT34     LDGT     HDGV     LDDV     LDDT     HDDV       MC   All Veh
          GVWR:           <6000    >6000    (All)
                 ------   ------   ------   ------   ------   ------   ------   ------   ------   ------
  VMT Distribution:   0.3478   0.3890   0.1336          0.0359   0.0003   0.0020   0.0860   0.0054   1.0000
 ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite VOC :     0.821    0.825    1.430    0.980    1.069    0.204    0.498    0.472     2.77    0.893
    Composite NOX :     0.595    0.728    1.120    0.828    2.015    0.365    0.635    5.894     1.02    1.226
 ---------------------------------------------------------------------------------------------------------------------

* ##########################
* YORK COUNTY 2010 - RURAL LOCAL
* File 1, Run 1, Scenario 6.
* ##########################
  M583 Warning:
         The user supplied arterial average speed of 26.9
         will be used for all hours of the day.  100% of VMT
         has been assigned to the arterial/collector roadway
         type for all hours of the day and all vehicle types.
  M 48 Warning:
          there are no sales for vehicle class HDGV8b

              Calendar Year:  2010
                    Month:  July
                 Altitude:  Low
          Minimum Temperature:  66.0 (F)
          Maximum Temperature:  92.0 (F)
            Absolute Humidity:   75. grains/lb
            Nominal Fuel RVP:   9.0 psi
               Weathered RVP:   8.6 psi
          Fuel Sulfur Content:   30. ppm

          Exhaust I/M Program:  No
            Evap I/M Program:  No
               ATP Program:  No
            Reformulated Gas:  No

     Vehicle Type:     LDGV   LDGT12   LDGT34     LDGT     HDGV     LDDV     LDDT     HDDV       MC   All Veh
          GVWR:           <6000    >6000    (All)
                 ------   ------   ------   ------   ------   ------   ------   ------   ------   ------
  VMT Distribution:   0.3478   0.3890   0.1336          0.0359   0.0003   0.0020   0.0860   0.0054   1.0000
 ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite VOC :     0.790    0.799    1.383    0.948    0.997    0.192    0.470    0.434     2.68    0.859
    Composite NOX :     0.578    0.712    1.097    0.810    2.061    0.355    0.618    5.738     1.06    1.199
 ---------------------------------------------------------------------------------------------------------------------

* ##########################
```

* YORK COUNTY 2010 - URBAN INTERSTATE
* File 1, Run 1, Scenario 7.
* ##########################

M515 Warning:
The combined freeway and ramp average speed entered
cannot be greater than 60.7 miles per hour.
The average speed will be reset to this value.

M582 Warning:
The user supplied freeway average speed of 60.7
will be used for all hours of the day. 100% of VMT
has been assigned to a fixed combination of freeways
and freeway ramps for all hours of the day and all
vehicle types.

M 48 Warning:
there are no sales for vehicle class HDGV8b

Calendar Year: 2010
Month: July
Altitude: Low
Minimum Temperature: 66.0 (F)
Maximum Temperature: 92.0 (F)
Absolute Humidity: 75. grains/lb
Nominal Fuel RVP: 9.0 psi
Weathered RVP: 8.6 psi
Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: No
Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3478	0.3890	0.1336		0.0359	0.0003	0.0020	0.0860	0.0054	1.0000

Composite Emission Factors (g/mi):

Composite VOC :	0.619	0.662	1.113	0.777	0.665	0.140	0.341	0.258	2.88	0.684
Composite NOX :	0.593	0.756	1.144	0.855	2.666	0.642	1.118	10.938	1.62	1.700

* ##########################
* YORK COUNTY 2010 - URBAN FREEWAY-EXPRESSWAY
* File 1, Run 1, Scenario 8.
* ##########################

M582 Warning:
The user supplied freeway average speed of 39.0
will be used for all hours of the day. 100% of VMT
has been assigned to a fixed combination of freeways
and freeway ramps for all hours of the day and all
vehicle types.

M 48 Warning:
there are no sales for vehicle class HDGV8b

Calendar Year: 2010
Month: July

```
            Altitude:  Low
  Minimum Temperature:  66.0 (F)
  Maximum Temperature:  92.0 (F)
    Absolute Humidity:   75. grains/lb
     Nominal Fuel RVP:   9.0 psi
        Weathered RVP:   8.6 psi
  Fuel Sulfur Content:   30. ppm

  Exhaust I/M Program:  No
     Evap I/M Program:  No
         ATP Program:  No
    Reformulated Gas:  No

    Vehicle Type:     LDGV   LDGT12   LDGT34     LDGT     HDGV     LDDV     LDDT     HDDV       MC   All Veh
         GVWR:           <6000    >6000    (All)
               ------   ------   ------   ------   ------   ------   ------   ------   ------   ------
 VMT Distribution:   0.3478   0.3890   0.1336          0.0359   0.0003   0.0020   0.0860   0.0054   1.0000
 ---------------------------------------------------------------------------------------------------------------------
Composite Emission Factors (g/mi):
   Composite VOC :     0.703    0.729    1.252    0.863    0.792    0.157    0.385    0.318     2.40    0.765
   Composite NOX :     0.556    0.699    1.078    0.796    2.266    0.351    0.610    6.250     1.16    1.236
 ---------------------------------------------------------------------------------------------------------------------

* ##########################
* YORK COUNTY 2010 - URBAN PRINCIPAL ARTERIAL
* File 1, Run 1, Scenario 9.
* ##########################
 M583 Warning:
        The user supplied arterial average speed of 35.3
        will be used for all hours of the day.  100% of VMT
        has been assigned to the arterial/collector roadway
        type for all hours of the day and all vehicle types.
 M 48 Warning:
         there are no sales for vehicle class HDGV8b

            Calendar Year:  2010
                 Month:  July
            Altitude:  Low
  Minimum Temperature:  66.0 (F)
  Maximum Temperature:  92.0 (F)
    Absolute Humidity:   75. grains/lb
     Nominal Fuel RVP:   9.0 psi
        Weathered RVP:   8.6 psi
  Fuel Sulfur Content:   30. ppm

  Exhaust I/M Program:  No
     Evap I/M Program:  No
         ATP Program:  No
    Reformulated Gas:  No

    Vehicle Type:     LDGV   LDGT12   LDGT34     LDGT     HDGV     LDDV     LDDT     HDDV       MC   All Veh
         GVWR:           <6000    >6000    (All)
               ------   ------   ------   ------   ------   ------   ------   ------   ------   ------
 VMT Distribution:   0.3478   0.3890   0.1336          0.0359   0.0003   0.0020   0.0860   0.0054   1.0000
 ---------------------------------------------------------------------------------------------------------------------
Composite Emission Factors (g/mi):
```

```
   Composite VOC :     0.718    0.739    1.273    0.876    0.838    0.166    0.405    0.345     2.46    0.781
   Composite NOX :     0.546    0.684    1.059    0.780    2.202    0.344    0.599    5.559     1.13    1.162
 ---------------------------------------------------------------------------------------------------------------

* ##########################
* YORK COUNTY 2010 - URBAN MINOR ARTERIAL
* File 1, Run 1, Scenario 10.
* ##########################
 M583 Warning:
        The user supplied arterial average speed of 35.2
        will be used for all hours of the day.  100% of VMT
        has been assigned to the arterial/collector roadway
        type for all hours of the day and all vehicle types.
 M 48 Warning:
         there are no sales for vehicle class HDGV8b

             Calendar Year:  2010
                   Month:  July
                Altitude:  Low
          Minimum Temperature:  66.0 (F)
          Maximum Temperature:  92.0 (F)
            Absolute Humidity:   75. grains/lb
             Nominal Fuel RVP:   9.0 psi
               Weathered RVP:   8.6 psi
          Fuel Sulfur Content:   30. ppm

          Exhaust I/M Program:  No
            Evap I/M Program:  No
                ATP Program:  No
            Reformulated Gas:  No

    Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
         GVWR:           <6000     >6000     (All)
                ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
 VMT Distribution:    0.3478    0.3890    0.1336            0.0359    0.0003    0.0020    0.0860    0.0054    1.0000
 ---------------------------------------------------------------------------------------------------------------
Composite Emission Factors (g/mi):
   Composite VOC :     0.719    0.739    1.274    0.876    0.840    0.166    0.405    0.346     2.46    0.782
   Composite NOX :     0.546    0.684    1.058    0.780    2.200    0.344    0.599    5.555     1.13    1.161
 ---------------------------------------------------------------------------------------------------------------

* ##########################
* YORK COUNTY 2010 - URBAN COLLECTOR
* File 1, Run 1, Scenario 11.
* ##########################
 M583 Warning:
        The user supplied arterial average speed of 25.6
        will be used for all hours of the day.  100% of VMT
        has been assigned to the arterial/collector roadway
        type for all hours of the day and all vehicle types.
 M 48 Warning:
         there are no sales for vehicle class HDGV8b

             Calendar Year:  2010
                   Month:  July
                Altitude:  Low
```

Minimum Temperature: 66.0 (F)
Maximum Temperature: 92.0 (F)
Absolute Humidity: 75. grains/lb
Nominal Fuel RVP: 9.0 psi
Weathered RVP: 8.6 psi
Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: No
Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:	<6000	>6000	(All)							
VMT Distribution:	0.3478	0.3890	0.1336	0.0359	0.0003	0.0020	0.0860	0.0054	1.0000	
Composite Emission Factors (g/mi):										
Composite VOC :	0.804	0.811	1.405	0.963	1.032	0.198	0.484	0.453	2.73	0.875
Composite NOX :	0.586	0.719	1.108	0.819	2.037	0.359	0.626	5.807	1.04	1.211

* ##########################
* YORK COUNTY 2010 - URBAN LOCAL
* File 1, Run 1, Scenario 12.
* ##########################
M583 Warning:
The user supplied arterial average speed of 23.1
will be used for all hours of the day. 100% of VMT
has been assigned to the arterial/collector roadway
type for all hours of the day and all vehicle types.
M 48 Warning:
there are no sales for vehicle class HDGV8b

Calendar Year: 2010
Month: July
Altitude: Low
Minimum Temperature: 66.0 (F)
Maximum Temperature: 92.0 (F)
Absolute Humidity: 75. grains/lb
Nominal Fuel RVP: 9.0 psi
Weathered RVP: 8.6 psi
Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: No
Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:	<6000	>6000	(All)							
VMT Distribution:	0.3478	0.3890	0.1336	0.0359	0.0003	0.0020	0.0860	0.0054	1.0000	
Composite Emission Factors (g/mi):										
Composite VOC :	0.837	0.840	1.457	0.998	1.108	0.210	0.512	0.491	2.82	0.911

Composite NOX :	0.604	0.736	1.133	0.838	1.997	0.371	0.646	5.993	1.01	1.242

C. VMT Used in Calculations

County/Road Type	2009	2010
York County		
Rural Interstate	852,652	874,735.7
Rural Principal Art.	77,925	80,488.73
Rural Minor Art.	272,179	281,732.5
Rural Major Collect.	242,554	244,737.3
Rural Minor Collect.	27,445	27,692.36
Rural Local	174,246	175,727.1
Urban Interstate	791,164	811,654.9
Urban Frwy/Exprwy	79,101	80,960.28
Urban Principal Art.	990,378	1,022,961
Urban Minor Art.	721,849	747,186.2
Urban Collector	218,491	220,457.7
Urban Local	363,495	366,584.9

D. NONROAD2005c Option Files

Written by Nonroad interface at 4/26/2007 3:54:11 PM
This is the options file for the NONROAD program.
The data is sperated into "packets" bases on common
information. Each packet is specified by an
identifier and a terminator. Any notes or descriptions
can be placed between the data packets.

9/2005 epa: Add growth & tech years to OPTIONS packet
and Counties & Retrofit files to RUNFILES packet.

PERIOD PACKET

This is the packet that defines the period for
which emissions are to be estimated. The order of the
records matter. The selection of certain parameters
will cause some of the record that follow to be ignored.
The order of the records is as follows:

1 - Char 10 - Period type for this simulation.
Valid responses are: ANNUAL, SEASONAL, and MONTHLY
2 - Char 10 - Type of inventory produced.
Valid responses are: TYPICAL DAY and PERIOD TOTAL
3 - Integer - year of episode (4 digit year)
4 - Char 10 - Month of episode (use complete name of month)
5 - Char 10 - Type of day
Valid responses are: WEEKDAY and WEEKEND

/PERIOD/

Period type : Annual
Summation type : Period total
Year of episode : 2009
Season of year :
Month of year :
Weekday or weekend : Weekday
Year of growth calc:
Year of tech sel :
/END/

OPTIONS PACKET

This is the packet that defines some of the user
options that drive the model. Most parameters are
used to make episode specific emission factor
adjustments. The order of the records is fixed.
The order is as follows.

1 - Char 80 - First title on reports
2 - Char 80 - Second title on reports
3 - Real 10 - Fuel RVP of gasoline for this simulation
4 - Real 10 - Oxygen weight percent of gasoline for simulation
5 - Real 10 - Percent sulfur for gasoline
6 - Real 10 - Percent sulfur for diesel
7 - Real 10 - Percent sulfur for LPG/CNG
8 - Real 10 - Minimum daily temperature (deg. F)
9 - Real 10 - maximum daily temperature (deg. F)
10 - Real 10 - Representative average daily temperature (deg. F)
11 - Char 10 - Flag to determine if region is high altitude
Valid responses are: HIGH and LOW
12 - Char 10 - Flag to determine if RFG adjustments are made
Valid responses are: YES and NO

/OPTIONS/
Title 1 : YORK COUNTY
Title 2 : 2009
Fuel RVP for gas : 8.0
Oxygen Weight % : 0.0
Gas sulfur % : 0.0339
Diesel sulfur % : 0.2284
Marine Dsl sulfur %: 0.2637
CNG/LPG sulfur % : 0.003
Minimum temper. (F): 60
Maximum temper. (F): 84
Average temper. (F): 75
Altitude of region : LOW
/END/

REGION PACKET

This is the packet that defines the region for which
emissions are to be estimated.

The first record tells the type of region and allocation to perform.

Valid responses are:

US TOTAL - emissions are for entire USA without state breakout.

50STATE - emissions are for all 50 states and Washington D.C., by state.

STATE - emissions are for a select group of states and are state-level estimates

COUNTY - emissions are for a select group of counties and are county level estimates. If necessary, allocation from state to county will be performed.

SUBCOUNTY - emissions are for the specified sub counties and are subcounty level estimates. If necessary, county to subcounty allocation will be performed.

The remaining records define the regions to be included. The type of data which must be specified depends on the region level.

US TOTAL - Nothing needs to be specified. The FIPS code 00000 is used automatically.

50STATE - Nothing needs to be specified. The FIPS code 00000 is used automatically.

STATE - state FIPS codes

COUNTY - state or county FIPS codes. State FIPS code means include all counties in the state.

SUBCOUNTY - county FIPS code and subregion code.

```
/REGION/
Region Level      : COUNTY
York County SC    : 45091
/END/
```

or use -

```
Region Level      : STATE
Michigan          : 26000
```

SOURCE CATEGORY PACKET

This packet is used to tell the model which source categories are to be processed. It is optional. If used, only those source categories list will appear in the output data file. If the packet is not found, the model will process all source

categories in the population files.

Diesel Only -
:2270000000
:2282020000
:2285002015
Spark Ignition Only -
:2260000000
:2265000000
:2267000000
:2268000000
:2282005010
:2282005015
:2282010005
:2285004015
:2285006015

This is the packet that lists the names of output files
and some of the input data files read by the model. If
a drive:\path\ is not given, the location of the
NONROAD.EXE file itself is assumed. You will probably
want to change the names of the Output and Message files
to match that of the OPTion file, e.g., MICH-97.OPT,
MICH-97.OUT, MICH-97.MSG, and if used MICH-97.AMS.

/RUNFILES/
ALLOC XREF : data\allocate\allocate.xrf
ACTIVITY : data\activity\activity.dat
EXH TECHNOLOGY : data\tech\tech-exh.dat
EVP TECHNOLOGY : data\tech\tech-evp.dat
SEASONALITY : data\season\season.dat
REGIONS : data\season\season.dat
MESSAGE : c:\nonroad\outputs\2009.msg
OUTPUT DATA : c:\nonroad\outputs\2009.out
EPS2 AMS :
US COUNTIES FIPS : data\allocate\fips.dat
RETROFIT :
/END/

This is the packet that defines the equipment population
files read by the model.

/POP FILES/
Population File : c:\nonroad\data\pop\sc.pop
/END/

POPULATION FILE : c:\nonroad\data\POP\MI.POP

This is the packet that defines the growth files
files read by the model.

/GROWTH FILES/
National defaults : data\growth\nation.grw
/END/

/ALLOC FILES/
Air trans. empl.   :c:\nonroad\data\allocate\sc_airtr.alo
Undergrnd coal prod:c:\nonroad\data\allocate\sc_coal.alo
Construction cost :c:\nonroad\data\allocate\sc_const.alo
Harvested acres   :c:\nonroad\data\allocate\sc_farms.alo
Golf course estab. :c:\nonroad\data\allocate\sc_golf.alo
Wholesale estab.   :c:\nonroad\data\allocate\sc_holsl.alo
Family housing   :c:\nonroad\data\allocate\sc_house.alo
Logging employees :c:\nonroad\data\allocate\sc_loggn.alo
Landscaping empl. :c:\nonroad\data\allocate\sc_lscap.alo
Manufacturing empl.:c:\nonroad\data\allocate\sc_mnfg.alo
Oil & gas employees:c:\nonroad\data\allocate\sc_oil.alo
Census population :c:\nonroad\data\allocate\sc_pop.alo
Allocation File   :c:\nonroad\data\allocate\sc_rail.alo
RV Park establish. :c:\nonroad\data\allocate\sc_rvprk.alo
Snowblowers comm. :c:\nonroad\data\allocate\sc_sbc.alo
Snowblowers res.   :c:\nonroad\data\allocate\sc_sbr.alo
Snowmobiles   :c:\nonroad\data\allocate\sc_snowm.alo
Rec marine inboard :c:\nonroad\data\allocate\sc_wib.alo
Rec marine outboard:c:\nonroad\data\allocate\sc_wob.alo
/END/

This is the packet that defines the emssions factors
files read by the model.

/EMFAC FILES/
THC exhaust   : data\emsfac\exhthc.emf
CO exhaust   : data\emsfac\exhco.emf
NOX exhaust   : data\emsfac\exhnox.emf
PM exhaust   : data\emsfac\exhpm.emf
BSFC   : data\emsfac\bsfc.emf
Crankcase   : data\emsfac\crank.emf
Spillage   : data\emsfac\spillage.emf
Diurnal   : data\emsfac\evdiu.emf
TANK PERM   : data\emsfac\evtank.emf
NON-RM HOSE PERM : data\emsfac\evhose.emf
RM FILL NECK PERM : data\emsfac\evneck.emf
RM SUPPLY/RETURN : data\emsfac\evsupret.emf
RM VENT PERM   : data\emsfac\evvent.emf
HOT SOAKS   : data\emsfac\evhotsk.emf
RUNINGLOSS   : data\emsfac\evrunls.emf
/END/

This is the packet that defines the deterioration factors
files read by the model.

/DETERIORATE FILES/
THC exhaust   : data\detfac\exhthc.det
CO exhaust   : data\detfac\exhco.det
NOX exhaust   : data\detfac\exhnox.det

PM exhaust : data\detfac\exhpm.det
Diurnal : data\detfac\evdiu.det
/END/

Optional Packets - Add initial slash "/" to activate

/STAGE II/
Control Factor : 0.0
/END/
Enter percent control: 95 = 95% control = 0.05 x uncontrolled
Default should be zero control.

/MODELYEAR OUT/
EXHAUST BMY OUT :
EVAP BMY OUT :
/END/

SI REPORT/
SI report file-CSV :OUTPUTS\NRPOLLUT.CSV
/END/

/DAILY FILES/
DAILY TEMPS/RVP :
/END/

PM Base Sulfur
cols 1-10: dsl tech type;
11-20: base sulfur wt%; or '1.0' means no-adjust (cert= in-use)
/PM BASE SULFUR/
T2 0.2000 0.02247
T3 0.2000 0.02247
T3B 0.0500 0.02247
T4A 0.0500 0.02247
T4B 0.0015 0.02247
T4 0.0015 0.30
T4N 0.0015 0.30
/END/

Written by Nonroad interface at 4/26/2007 2:16:30 PM
This is the options file for the NONROAD program.
The data is sperated into "packets" bases on common
information. Each packet is specified by an
identifier and a terminator. Any notes or descriptions
can be placed between the data packets.

9/2005 epa: Add growth & tech years to OPTIONS packet
and Counties & Retrofit files to RUNFILES packet.

PERIOD PACKET

This is the packet that defines the period for
which emissions are to be estimated. The order of the
records matter. The selection of certain parameters
will cause some of the record that follow to be ignored.

The order of the records is as follows:

1 - Char 10 - Period type for this simulation.
Valid responses are: ANNUAL, SEASONAL, and MONTHLY
2 - Char 10 - Type of inventory produced.
Valid responses are: TYPICAL DAY and PERIOD TOTAL
3 - Integer - year of episode (4 digit year)
4 - Char 10 - Month of episode (use complete name of month)
5 - Char 10 - Type of day
Valid responses are: WEEKDAY and WEEKEND

/PERIOD/
Period type : Annual
Summation type : Period total
Year of episode : 2010
Season of year :
Month of year :
Weekday or weekend : Weekday
Year of growth calc:
Year of tech sel :
/END/

OPTIONS PACKET

This is the packet that defines some of the user options that drive the model. Most parameters are used to make episode specific emission factor adjustments. The order of the records is fixed. The order is as follows.

1 - Char 80 - First title on reports
2 - Char 80 - Second title on reports
3 - Real 10 - Fuel RVP of gasoline for this simulation
4 - Real 10 - Oxygen weight percent of gasoline for simulation
5 - Real 10 - Percent sulfur for gasoline
6 - Real 10 - Percent sulfur for diesel
7 - Real 10 - Percent sulfur for LPG/CNG
8 - Real 10 - Minimum daily temperature (deg. F)
9 - Real 10 - maximum daily temperature (deg. F)
10 - Real 10 - Representative average daily temperature (deg. F)
11 - Char 10 - Flag to determine if region is high altitude
Valid responses are: HIGH and LOW
12 - Char 10 - Flag to determine if RFG adjustments are made
Valid responses are: YES and NO

/OPTIONS/
Title 1 : NON-ROAD FEDERAL REDUCTIONS
Title 2 : 2010
Fuel RVP for gas : 9.0
Oxygen Weight % : 0.0
Gas sulfur % : 0.003
Diesel sulfur % : 0.05
Marine Dsl sulfur %: 0.2637
CNG/LPG sulfur % : 0.003

Minimum temper. (F): 66
Maximum temper. (F): 92
Average temper. (F): 75
Altitude of region : LOW
/END/

REGION PACKET

This is the packet that defines the region for which emissions are to be estimated.

The first record tells the type of region and allocation to perform.

Valid responses are:
US TOTAL - emissions are for entire USA without state breakout.

50STATE - emissions are for all 50 states and Washington D.C., by state.

STATE - emissions are for a select group of states and are state-level estimates

COUNTY - emissions are for a select group of counties and are county level estimates. If necessary, allocation from state to county will be performed.

SUBCOUNTY - emissions are for the specified sub counties and are subcounty level estimates. If necessary, county to subcounty allocation will be performed.

The remaining records define the regions to be included. The type of data which must be specified depends on the region level.

US TOTAL - Nothing needs to be specified. The FIPS code 00000 is used automatically.

50STATE - Nothing needs to be specified. The FIPS code 00000 is used automatically.

STATE - state FIPS codes

COUNTY - state or county FIPS codes. State FIPS code means include all counties in the state.

SUBCOUNTY - county FIPS code and subregion code.

/REGION/
Region Level : COUNTY
York County SC : 45091
/END/

or use -
Region Level : STATE
Michigan : 26000

SOURCE CATEGORY PACKET

This packet is used to tell the model which source
categories are to be processed. It is optional.
If used, only those source categories list will
appear in the output data file. If the packet is
not found, the model will process all source
categories in the population files.

Diesel Only -
:2270000000
:2282020000
:2285002015
Spark Ignition Only -
:2260000000
:2265000000
:2267000000
:2268000000
:2282005010
:2282005015
:2282010005
:2285004015
:2285006015

This is the packet that lists the names of output files
and some of the input data files read by the model. If
a drive:\path\ is not given, the location of the
NONROAD.EXE file itself is assumed. You will probably
want to change the names of the Output and Message files
to match that of the OPTion file, e.g., MICH-97.OPT,
MICH-97.OUT, MICH-97.MSG, and if used MICH-97.AMS.

/RUNFILES/
ALLOC XREF : data\allocate\allocate.xrf
ACTIVITY : data\activity\activity.dat
EXH TECHNOLOGY : data\tech\tech-exh.dat
EVP TECHNOLOGY : data\tech\tech-evp.dat
SEASONALITY : data\season\season.dat
REGIONS : data\season\season.dat
MESSAGE : c:\nonroad\outputs\2010.msg
OUTPUT DATA : c:\nonroad\outputs\2010.out
EPS2 AMS :
US COUNTIES FIPS : data\allocate\fips.dat
RETROFIT :
/END/

This is the packet that defines the equipment population
files read by the model.

```
-------------------------------------------------------
/POP FILES/
Population File    : c:\nonroad\data\pop\sc.pop
/END/

POPULATION FILE    : c:\nonroad\data\POP\MI.POP


-------------------------------------------------------
This is the packet that defines the growth files
files read by the model.
-------------------------------------------------------
/GROWTH FILES/
National defaults  : data\growth\nation.grw
/END/


/ALLOC FILES/
Air trans. empl.   :c:\nonroad\data\allocate\sc_airtr.alo
Undergrnd coal prod:c:\nonroad\data\allocate\sc_coal.alo
Construction cost  :c:\nonroad\data\allocate\sc_const.alo
Harvested acres    :c:\nonroad\data\allocate\sc_farms.alo
Golf course estab. :c:\nonroad\data\allocate\sc_golf.alo
Wholesale estab.   :c:\nonroad\data\allocate\sc_holsl.alo
Family housing     :c:\nonroad\data\allocate\sc_house.alo
Logging employees  :c:\nonroad\data\allocate\sc_loggn.alo
Landscaping empl.  :c:\nonroad\data\allocate\sc_lscap.alo
Manufacturing empl.:c:\nonroad\data\allocate\sc_mnfg.alo
Oil & gas employees:c:\nonroad\data\allocate\sc_oil.alo
Census population  :c:\nonroad\data\allocate\sc_pop.alo
Allocation File    :c:\nonroad\data\allocate\sc_rail.alo
RV Park establish. :c:\nonroad\data\allocate\sc_rvprk.alo
Snowblowers comm.  :c:\nonroad\data\allocate\sc_sbc.alo
Snowblowers res.   :c:\nonroad\data\allocate\sc_sbr.alo
Snowmobiles        :c:\nonroad\data\allocate\sc_snowm.alo
Rec marine inboard :c:\nonroad\data\allocate\sc_wib.alo
Rec marine outboard:c:\nonroad\data\allocate\sc_wob.alo
/END/
-------------------------------------------------------
This is the packet that defines the emssions factors
files read by the model.
-------------------------------------------------------
/EMFAC FILES/
THC exhaust        : data\emsfac\exhthc.emf
CO exhaust         : data\emsfac\exhco.emf
NOX exhaust        : data\emsfac\exhnox.emf
PM exhaust         : data\emsfac\exhpm.emf
BSFC               : data\emsfac\bsfc.emf
Crankcase          : data\emsfac\crank.emf
Spillage           : data\emsfac\spillage.emf
Diurnal            : data\emsfac\evdiu.emf
TANK PERM          : data\emsfac\evtank.emf
NON-RM HOSE PERM   : data\emsfac\evhose.emf
RM FILL NECK PERM  : data\emsfac\evneck.emf
RM SUPPLY/RETURN   : data\emsfac\evsupret.emf
RM VENT PERM       : data\emsfac\evvent.emf
```

```
HOT SOAKS          : data\emsfac\evhotsk.emf
RUNINGLOSS         : data\emsfac\evrunls.emf
/END/

------------------------------------------------------------
This is the packet that defines the deterioration factors
files read by the model.
------------------------------------------------------------
/DETERIORATE FILES/
THC exhaust        : data\detfac\exhthc.det
CO exhaust         : data\detfac\exhco.det
NOX exhaust        : data\detfac\exhnox.det
PM exhaust         : data\detfac\exhpm.det
Diurnal            : data\detfac\evdiu.det
/END/

Optional Packets - Add initial slash "/" to activate

/STAGE II/
Control Factor     : 0.0
/END/
Enter percent control: 95 = 95% control = 0.05 x uncontrolled
Default should be zero control.

/MODELYEAR OUT/
EXHAUST BMY OUT    :
EVAP BMY OUT       :
/END/

SI REPORT/
SI report file-CSV :OUTPUTS\NRPOLLUT.CSV
/END/

/DAILY FILES/
DAILY TEMPS/RVP    :
/END/

PM Base Sulfur
 cols 1-10: dsl tech type;
 11-20: base sulfur wt%; or '1.0' means no-adjust (cert= in-use)
/PM BASE SULFUR/
T2        0.2000    0.02247
T3        0.2000    0.02247
T3B       0.0500    0.02247
T4A       0.0500    0.02247
T4B       0.0015    0.02247
T4        0.0015    0.30
T4N       0.0015    0.30
/END/
```